## **CLAIMS**

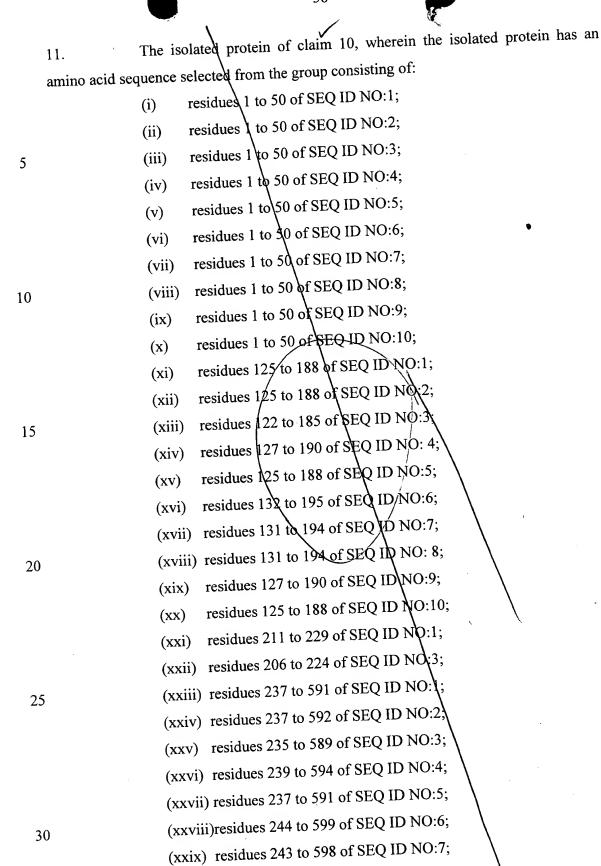
We claim:

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- 1. An isolated protein comprising twelve or more contiguous conserved amino acids of an NhhA polypeptide, wherein said isolated protein is not a wild-type NhhA polypeptide.
- 2. The isolated protein of claim 1 which is capable of eliciting an immune response.
- 3. The isolated protein of claim 2, wherein the immune response is less strain-specific than that elicited by a corresponding said NhhA polypeptide.
- 10 4. The isolated protein of claim 3, wherein said immune response provides protection against one or more strains of N. meningitidis.
  - 5. The isolated protein of claim 3, wherein said immune response provides protection against a plurality of strains of N. meningitidis.
- 6. The isolated protein of claim 1 comprising twenty or more contiguous conserved amino acids.
  - 7. The isolated protein of claim 6 comprising fifty or more contiguous conserved amino acids.
  - 8. The isolated protein of claim 7 comprising one hundred or more contiguous conserved amino acids.
- 9. The isolated protein of claim 1, wherein the NhhA polypeptide has an amino acid sequence selected from the group consisting of SEQ ID NO: 1; SEQ ID NO: 2; SEQ ID NO: 3; SEQ ID NO: 4; SEQ ID NO: 5; SEQ ID NO: 6; SEQ ID NO: 7; SEQ ID NO: 8; SEQ ID NO: 9; and SEQ ID NO: 10.
- 10. An isolated protein comprising an amino acid sequence selected from the group consisting of:
  - (i) residues 1 to 50 of SEQ ID NO:11;
  - (ii) residues 109 to 120 of SEQ ID NO:11;
  - (iii) residues 135 to 198 of SEQ ID NO:11;
  - (iv) residues 221 to 239 of SEQ ID NO:11; and
  - (v) residues 249 to 604 of SEQ ID NO:11.

wherein said isolated protein is not a wild type NhhA polypeptide.

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- (xxx) residues 243 to 598 of SEQ ID NO:8.
- (xxxi) residues 239 to 594 of SEQ ID NO:9; and
- (xxxii) residues 237 to 592 of SEQ ID NO:10.
- 12. The isolated protein of claim 10 further comprising one or more variable (V)
  5 region amino acids of an NhhA polypeptide.
  - 13. The isolated protein of claim 11 having an amino acid sequence selected from the group consisting of: SEQ ID NO:23; SEQ ID NO:24, SEQ ID NO:25; SEQ ID NO:26; SEQ ID NO:37; SEQ ID NO: 33; SEQ ID NO: 34 SEQ ID NO: 35; SEQ ID NO: 36; SEQ ID NO: 37; SEQ ID NO: 38; and SEQ ID NO: 39.
- 10 14. An allelic variant of the isolated protein of claim 10.
  - 15. A pharmaceutical composition comprising one or more isolated proteins according to claim 1 or 10.
  - 16. The pharmaceutical composition of claim 15 which is a vaccine.
  - 17. An isolated nucleic acid encoding the isolated protein of claim 1 or 10.
- 15 18. The isolated nucleic acid of claim 17 which has a nucleotide sequence selected from the group consisting of:
  - (i) residues 1 to 150 of SEQ ID NO:22;
  - (ii) residues 325 to 361 of SEQ ID NO:22;
  - (iii) residues 403 to 595 of \$EQ ID NO:22;
  - (iv) residues 661 to 717 of SEQ ID NO:22; and
  - (v) residues 745 to 1815 of SEQ ID NO:22.
  - 19. The isolated nucleic acid of claim 17 which has a nucleotide sequence selected from the group consisting of SEQ ID NO:28; SEQ ID NO:29: SEQ ID NO:30; SEQ ID NO:31 and SEQ ID NO:32.
- 25 20. An expression vector which includes the isolated nucleic acid of claim 17.
  - 21. A host cell transformed with the expression vector of claim 20.
  - 22. The host cell of claim 21 which is a bacterium
  - 23. The host cell of claim 22 which is Neisseria meningitidis.

add i

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add 5

add)